

## **AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Original) An information recognition device, comprising:

thermal radiation detection means for detecting, by a thermal radiation sensor, thermal radiation emitted from an object-to-be-detected having plural different pieces of attribute information existing in a detection range;

behavior pattern model storage means for storing a behavior pattern model obtained by modeling output of the thermal radiation sensor depending on a behavior pattern of an object-to-be-detected by using a predetermined modeling method; and.

information recognition means for recognizing plural different pieces of attribute information relating to the object-to-be-detected existing in the detection range based on a detection result of the thermal radiation detection means and the behavior pattern model stored in the behavior pattern model storage means, wherein

the information recognition means extracts the feature data from the detection result of the thermal radiation detection means, calculates the likelihood between the feature data and the behavior pattern model based on the feature data and the behavior pattern model stored in the behavior pattern model storage means, and recognizes plural different pieces of attribute information relating to the object-to-be-detected based on the calculated likelihood.

2. (Original) The information recognition device according to claim 1, wherein

the behavior pattern model storage means stores plural behavior pattern models depending on respective types of behavior patterns.

3. (Currently Amended) The information recognition device according to claim ~~[[1 or]]~~ 2, further comprising:

behavior pattern model generation means for generating the behavior pattern model of the object-to-be-detected based on the output of the thermal radiation sensor by using the predetermined modeling method.

4. (Currently Amended) The information recognition device according to any one of claims 1 to 3, wherein

the thermal radiation sensor is a thermo-sensor.

5. (Currently Amended) The information recognition device according to any one of claims 1 to 3, wherein

the thermal radiation sensor is a quantum sensor.

6. (Currently Amended) The information recognition device according to any one of claims 1 to 3, wherein

the thermo-sensor is a pyroelectric infrared sensor for detecting infrared emitted from the object-to-be-detected using a pyroelectric effect.

7. (Currently Amended) The information recognition device according to any one of claims 1 to ~~[[6]]~~3, wherein

the predetermined modeling method is an HMM (hidden Markov model).

8. (Canceled)

9. (Canceled)

10. (Canceled)

11. (Currently Amended) The information recognition device according to any one of claims 1 to ~~[[7]]~~3, wherein

the feature data comprises first feature data constituted by a spectrum in a frame unit of a detection result of the thermal radiation detection means and second feature data constituted by an average amplitude value of the spectrum in the frame unit.

12. (Original) The information recognition device according to claim 11, wherein the first feature data is obtained by transforming a value of the spectrum in the frame unit into a value of a common logarithm.

13. (Currently Amended) The information recognition device according to claim ~~11 or~~ 12, wherein

the feature data further comprises third feature data constituted by a difference between feature indicated by the first feature data of a selected frame and feature indicated by the first feature data of the frame immediately before the selected frame.

14. (Original) The information recognition device according to claim 13, wherein the feature data further comprises fourth feature data constituted by a difference between feature indicated by the second feature data of a selected frame and feature indicated by the second feature data of the frame immediately before the selected frame.

15. (Currently Amended) The information recognition device according to any one of claims 1 to 7 and ~~claims 11 to 14~~ 3, wherein

when the behavior pattern model is constituted by the feature data of a high dimension of four or more, the device comprises:

feature data display means for displaying the feature data corresponding to each behavior pattern model stored in the behavior pattern model storage means as a coordinate point in a two- or three-dimensional space; and

detection result display means for displaying a coordinate point corresponding to a detection result of the thermal radiation detection means in a space in which the coordinate point of the feature data is displayed.

16. (Original) An information recognition method, comprising:

detecting, by a thermal radiation sensor, thermal radiation emitted from an object-to-be-detected having plural different pieces of attribute information existing in a detection range;

preparing a behavior pattern model obtained by modeling output of the thermal radiation sensor depending on plural types of behavior patterns of plural objects-to-be-detected by using a predetermined modeling method; and

recognizing plural different pieces of attribute information relating to the object-to-be-detected existing in the detection range based on a detection result of the thermal radiation sensor and the behavior pattern model, wherein

in recognizing plural different pieces of attribute information, feature data is extracted from the detection result of the thermal radiation sensor, the likelihood between the feature data and the behavior pattern model is calculated based on the feature data and the behavior pattern model, and plural different pieces of attribute information relating to the object-to-be-detected is recognized based on the calculated likelihood.

17. (Original) An information recognition program executed by a computer, comprising:

a thermal radiation detecting step of detecting, by a thermal radiation sensor, thermal radiation emitted from an object-to-be-detected having plural different pieces of attribute information existing in a detection range;

a behavior pattern model storing step of storing a behavior pattern model obtained by modeling output of the thermal radiation sensor depending on plural types of behavior patterns of plural objects-to-be-detected by using a predetermined modeling method; and

an information recognizing step of recognizing plural different pieces of attribute information relating to the object-to-be-detected existing in the detection range based on a detection result in the thermal radiation detecting step and the behavior pattern model stored in the behavior pattern model storing step, wherein

in the information recognizing step, feature data is extracted from the detection result in the thermal radiation detecting step, the likelihood between the feature data and the behavior pattern model is calculated based on the feature data and the behavior pattern model stored in the behavior pattern model storing step, and plural different pieces of attribute information relating to the object-to-be-detected is recognized based on the calculated likelihood.

18. (Currently Amended) An alarm system, comprising:

the information recognition device according to any one of claims 1 to ~~7 and~~ claims 11 to 15 3;

determination means for determining whether or not the object-to-be-detected is a person based on a recognition result of the information recognition device; and

alarm means for raising an alarm when the determination means determines that the object-to-be-detected is a person.

19. (New) An alarm system, comprising:

the information recognition device according to claim 15,

determination means for determining whether or not the object-to-be-detected is a person based on a recognition result of the information recognition device; and

alarm means for raising an alarm when the determination means determines that the object-to-be-detected is a person.